

Name: Mr. Davis

1. Graph the line with equation $y = 2x - 5$

What is the slope of the line?

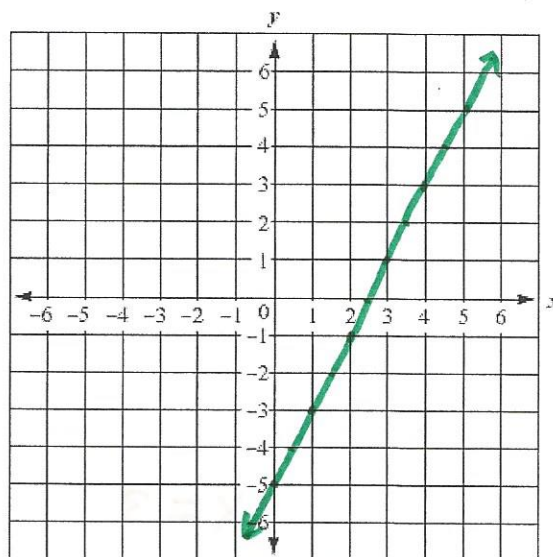
$$m = 2$$

What are the coordinates of the y-intercept?

$$(0, -5)$$

What are the coordinates of the x-intercept?

$$(x, 0) \quad y = 0 \quad 0 = 2x - 5 \\ x = 2.5 \\ (2.5, 0)$$



2. A line contains two points $P(-1, 10)$ and $T(4, -5)$.

- a. Determine an equation of the line in slope intercept form.

$$m = \frac{-5 - 10}{4 - (-1)} = \frac{-15}{5} = -3 \quad y = -3x + b$$

$$T(4, -5) \quad -5 = -3(4) + b \\ -5 = -12 + b \\ 7 = b$$

$$y = -3x + 7 \text{ answer}$$

- b. What is the y-coordinate at the point where the x-coordinate is $x = -20$

$$y = -3(-20) + 7 = 60 + 7 = 67$$

3. Solve the literal equation $C = Ax + By$ for A

$$C - By = Ax$$

$$\frac{C - By}{x} = A$$

$$A = \frac{C - By}{x}$$

4. Convert each equation from slope-intercept form to standard form or vice versa:

a. $6x - y = -5$

$$-y = -6x - 5 \\ y = 6x + 5$$

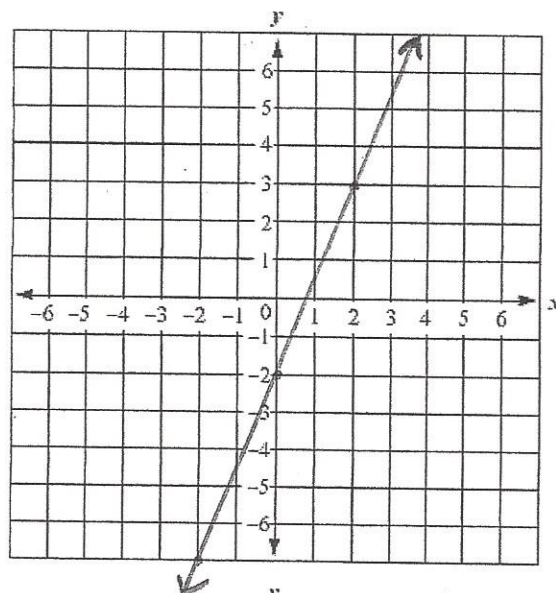
b. $y = \frac{-2}{3}x + 4$

$$3y = -2x + 12$$

$$1 \quad 2x + 3y = 12$$

5. Write an equation of the line shown in slope-intercept form.

$$y = \frac{5}{2}x - 2$$



6. Write an equation of the line shown in slope-intercept form.

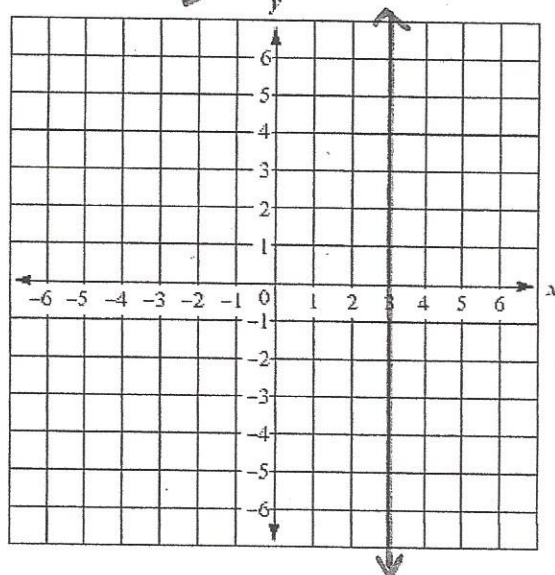
$$x = 3$$

What is the slope of the line?

slope does not exist
or is undefined

What is the y-intercept of the line?

There is none



7. Find an equation of the line with slope $m = \frac{3}{5}$ and point $A(0, -2)$

$$y = \frac{3}{5}x - 2$$

8. Kayla gets in her cab and notices the initial up-front fee on the meter. After 2 minutes, the meter reads \$6.50, and after 6 minutes, the meter reads \$12.50.

$$(\text{min}, \$) = (2, 6.50) \quad (\text{min}, \$) = (6, 12.50)$$

- a. What is the rate of change in this scenario? Include the proper units.

$$m = \frac{12.50 - 6.50}{6 - 2} = \frac{6}{4} = \frac{3}{2} = 1.50 \text{ \$1.50 per min.}$$

- b. What is an equation or rule or formula that gives the cab fare as a function of time?

$$y = 1.50x \quad y = \$ \\ x = \text{min.}$$

- c. How much will a 20-minute cab ride cost?

$$y = 1.5(20) = \$30$$

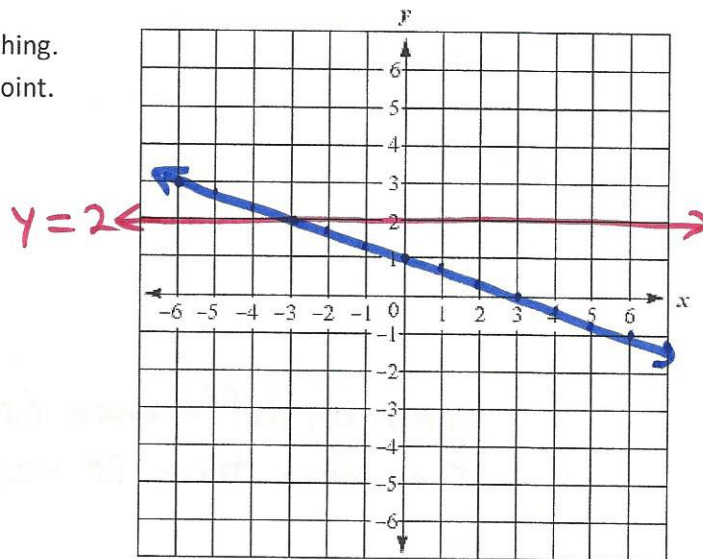
9. Solve the literal equation $\frac{x^2 + gh}{y} = k$ for g .

$$\begin{aligned} x^2 + gh &= yk \\ gh &= yk - x^2 \\ g &= \frac{yk - x^2}{h} \end{aligned}$$

10. Solve the system of two equations by graphing.
State the coordinates of the intersection point.

$$y = 2 \quad \& \quad y = \frac{-1}{3}x + 1$$

Solution
 $(-3, 2)$



11. Determine an equation of the line that contains the point $P(-4, 5)$ and is parallel to the line with equation $-3x + 2y = -8$.

$$\begin{aligned} 2y &= 3x - 8 \\ y &= \frac{3}{2}x - 4 \\ m &= \frac{3}{2} \end{aligned}$$

Parallel line
 $y = \frac{3}{2}x + b$

$$5 = \frac{3}{2}(-4) + b$$

$$5 = -6 + b$$

$$11 = b$$

Parallel line equation
 $y = \frac{3}{2}x + 11$

12. Determine an equation of the line that contains the point $P(2, -1)$ and is perpendicular to the line shown.

A perpendicular line will have
slope $m = -\frac{3}{2}$

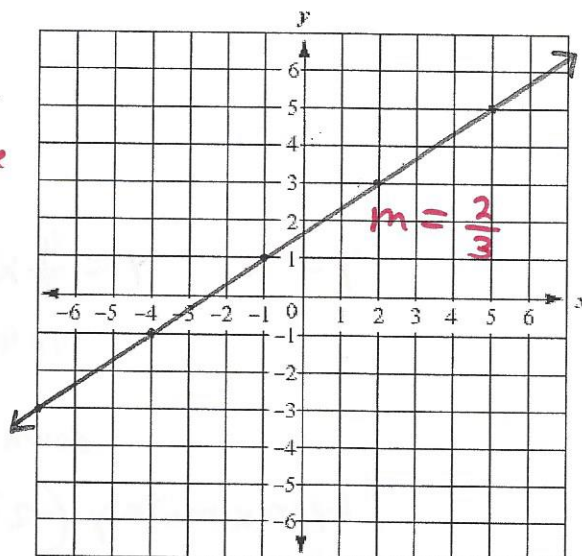
$$y = -\frac{3}{2}x + b \quad P(2, -1)$$

$$-1 = -\frac{3}{2}(2) + b$$

$$-1 = -3 + b$$

$$2 = b$$

$$y = -\frac{3}{2}x + 2$$



13. Determine which tables contain data representing a proportional relationship. Write "yes" or "no" below each table. If "yes", write an equation representing the proportional relationship.

$m = -4$

a. Yes

x	y
-3	12
-1	4
0	0
2	-8
4	-16

$y = -4x$

NO

b.

X	y
2	3
4	7
6	11
9	17
10	19

NO

c.

x	y
0	0
1	1
2	4
3	9
4	16

$m = \frac{2}{3}$

d.

x	y
-3	-2
3	2
6	4
9	6
12	8

$y = \frac{2}{3}x$

14. Write a rule or equation or formula for the linear sequence $-14, -6, 2, 10, 18, \dots$

Common difference (slope) is $m = 8$

The zero term is -22 $y = 8x - 22$

15. A water pump can remove water from a pool at a constant rate. 75 gallons are removed in 5 minutes and 165 gallons are removed in 11 minutes.

(min, gallons) = (5, 75)

(min, gall) = (11, 165)

- a. What is the rate in gallons per minute at which the water is being pumped out of the pool?

$$m = \frac{165 - 75}{11 - 5} = \frac{90}{6} = 15 \text{ gallons per minute}$$

- b. Write a rule or equation or formula that represents the amount of water being pumped out as a function of time.

$y = 15x$

- c. How many gallons are pumped out after one hour?

1 hour = 60 min. $y = 15(60) = 900 \text{ gallons}$

16. Solve the system of two equations by graphing.

$x + y = 0$ & $y - \frac{4}{3}x = 6$

$y = -x$

$y = \frac{4}{3}x + 6$

up 4 right 3

or

down 4 left 3

Approximately $(-2\frac{2}{3}, 2\frac{1}{3})$

